

Water Conservation Area 1

*Annual Total Phosphorus Criteria
Compliance Assessment – WY2013*

Technical Oversight Committee
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Water Quality Standards for Phosphorus Within the Everglades Protection Area

(62-302.540 F.A.C.)

Achievement of the criterion for the ambient monitoring network is evaluated based on data collected monthly from stations in both impacted and unimpacted areas within the WCAs. This presentation focuses on compliance assessment within Water Conservation Area-1.

To achieve the criterion, the following four provisions must be met within each network (impacted and unimpacted):

1. The five year geometric mean averaged across all stations is less than or equal to 10 $\mu\text{g/L}$.
2. The annual geometric mean averaged across all stations is less than or equal to 10 $\mu\text{g/L}$ for three of five water years.
3. The annual geometric mean averaged across all stations is less than or equal to 11 $\mu\text{g/L}$; and
4. The annual geometric mean at all individual stations is less than or equal to 15 $\mu\text{g/L}$.



TP Rule Part 1

1. The water body will have achieved the criterion if the five year[†] (WY2009-WY2013) geometric mean averaged across all stations is less than or equal to 10 µg/L.

Assessment results:

- Unimpacted: 7 µg/L (Passed)
- Impacted: 16 µg/L (Failed)



[†] Year is defined as the Florida Water Year (WY) starting May 1st and ending April 30th of the subsequent year.

TP Rule Part 2

2. The annual geometric mean averaged across all stations is less than or equal to 10 $\mu\text{g/L}$ for three of five water years.

Assessment results:

Table 1. Five year annual geometric mean averaged across all stations for each network (i.e. impacted and unimpacted).

Water Year (May 1 - April 30)	Total Phosphorus ($\mu\text{g/L}$)	
	Unimpacted	Impacted
2009	8	12
2010	8	16
2011	7	15
2012	8	24
2013	7	15

<i>Status</i>	<i>Pass</i>	<i>Fail</i>
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TP Rule Part 3

3. The annual (WY2013) geometric mean averaged across all stations is less than or equal to 11 $\mu\text{g/L}$.

Assessment status:

- Unimpacted: 7 $\mu\text{g/L}$ (Passed)
- Impacted: 15 $\mu\text{g/L}$ (Failed)



TP Rule Part 4

4. The annual (WY2013) geometric mean at all individual stations is less than or equal to 15 $\mu\text{g/L}$.

Assessment results:

- Unimpacted: Passed
- Impacted: Failed (LOXA101, LOXA105, X1 and Z1)

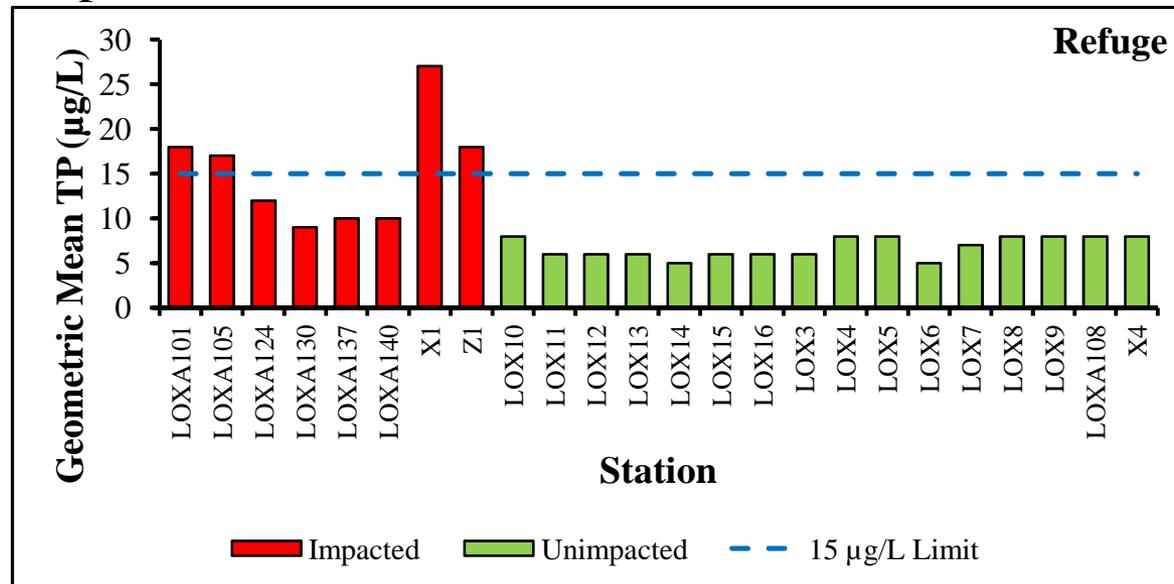


Figure 1. TP geometric mean for each station during WY2013 for the Refuge relative to the 15 $\mu\text{g/L}$ annual limit.



Summary

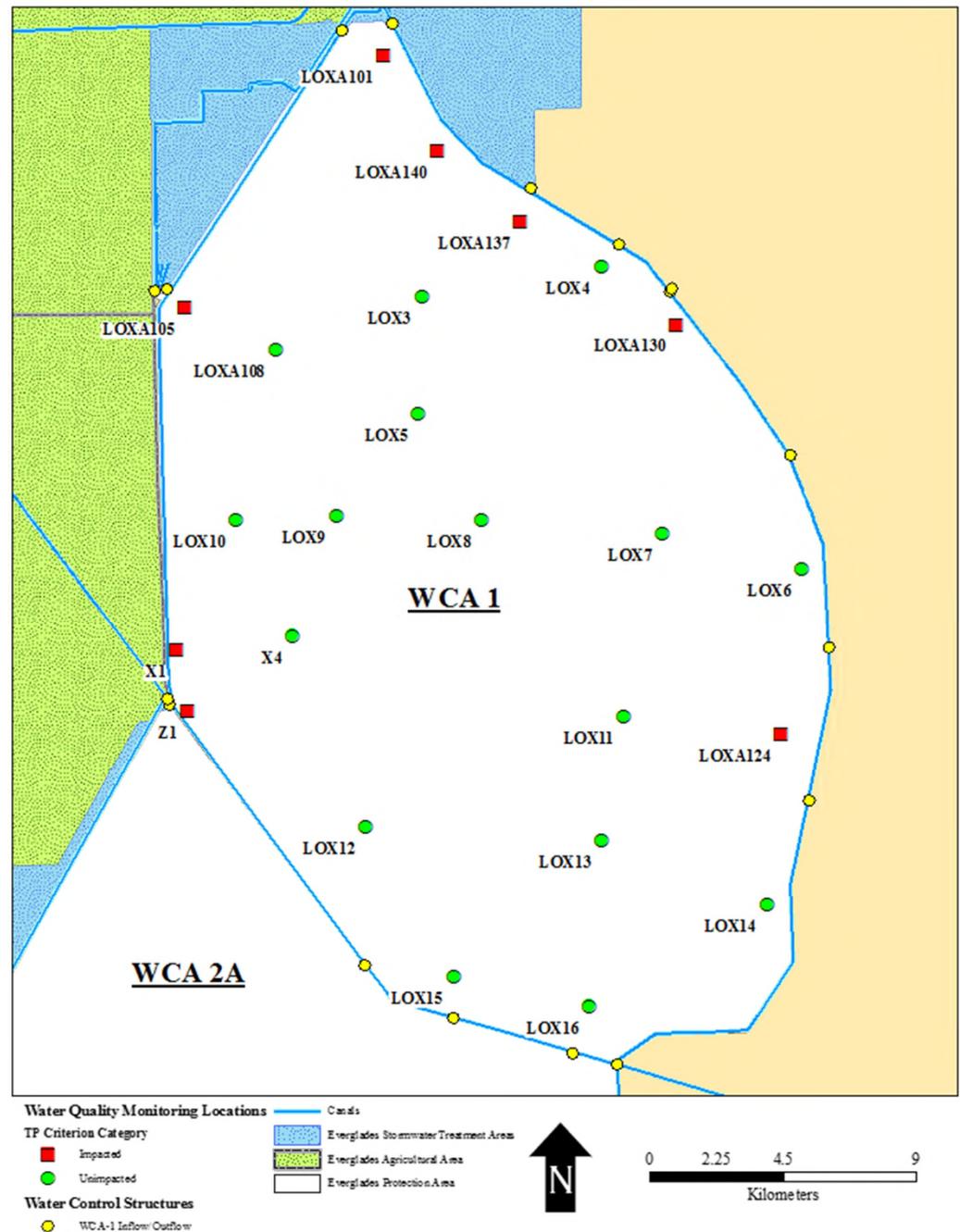
Phosphorus Rule* Compliance for WCA-1 (WY2009-2013)

Part	Description	Unimpacted		Impacted	
		Actual Value (µg/L)	Passed?	Actual Value (µg/L)	Passed?
1	5-yr geometric mean TP averaged across all stations is less than 10 µg/L	7	Yes	16	No
2	Annual geometric mean TP averaged across all stations is less than 10 µg/L for 3 of 5 years	8, 8, 7, 8 and 7 (2009-2013 respectively)	Yes	12, 16, 15, 24 and 15 (2009-2013 respectively)	No
3	Annual geometric mean TP averaged across all stations is less than or equal to 11 µg/L	7	Yes	15	No
4	Annual geometric mean TP at all individual stations is less than or equal to 15 µg/L	See previous slide. (All below 15 µg/L)	Yes	See previous slide.	No

*F.A.C. 62-302.540 Water Quality Standards for Phosphorus Within the Everglades Protection Area

Supplemental Information – Sampling Locations within Water Conservation Area-1

Figure S-1. Total phosphorus (TP) criterion assessment network stations within the Water Conservation Area-1. Sites identified were used in the Water Year 2009 – 2013 (WY2009-WY2013; May 1, 2008 – April 30, 2013) evaluation.



Supplemental Information - Network Trends

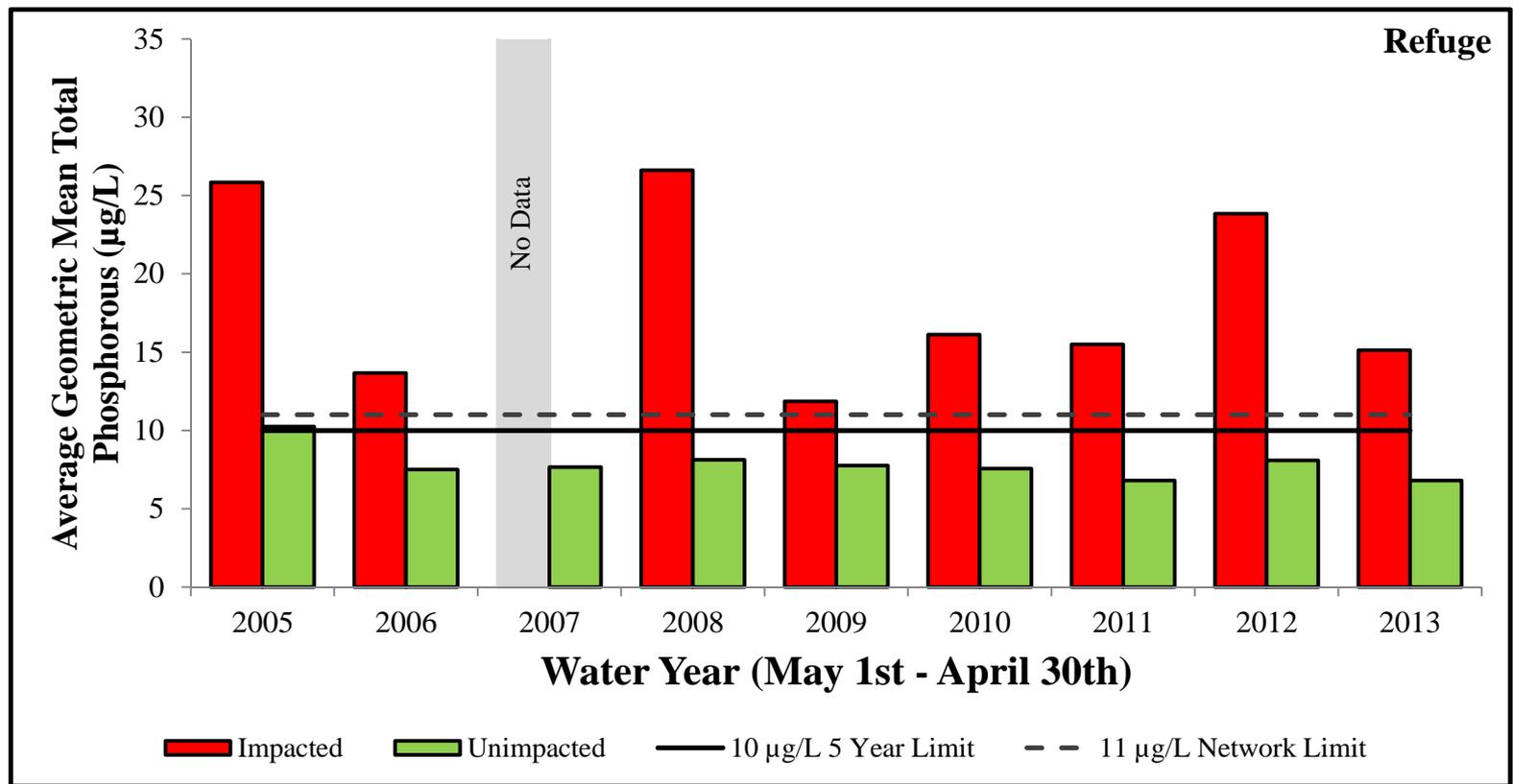
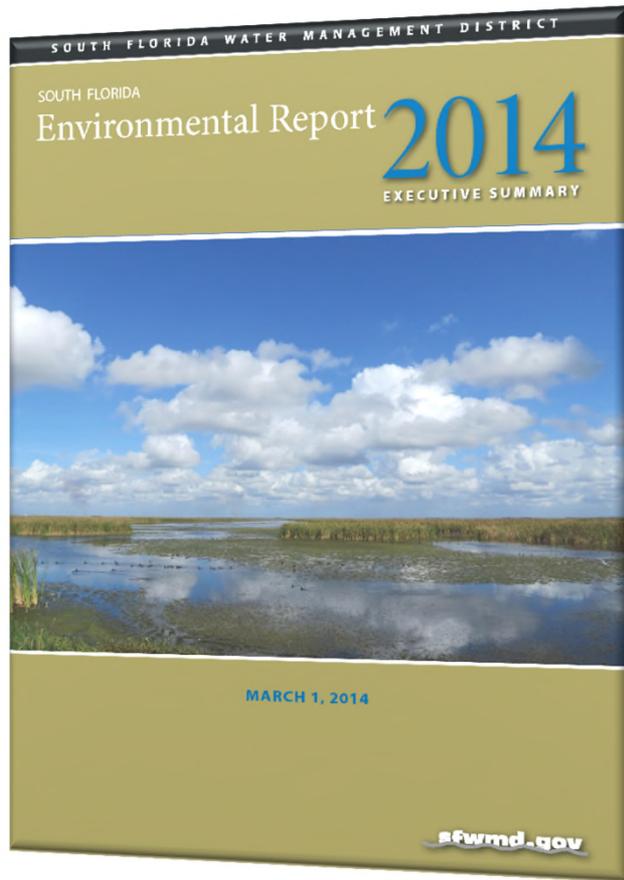


Figure S-2. Network (Impacted and Unimpacted) trends for the Refuge from WY2005 to WY2013 relative to the 10 µg/L long-term (5 Year) and the 11 µg/L network limits. ‡Due to extreme weather events and drought conditions a data gap exists for WY2007 within the Refuge.

Supplemental Information - Data



Data for this assessment can be found in Chapter 3A, Appendix 3A-6 of the 2014 South Florida Environmental Report (<http://www.sfwmd.gov/sfer>). Also provided in appendix 3A-6 are TP compliance assessments of WCA-2 and WCA-3.

